REMARKS

In the non-Office Action, dated March 30, 2005, the Examiner rejects claims 1, 6, 8, 18, 21, and 24 under 35 U.S.C. § 102(e) as anticipated by HSING et al. (U.S. Patent No. 6,167,025); rejects claims 2, 4, 12, 13, and 17 under 35 U.S.C. § 103(a) as unpatentable over HSING et al. in view of MEDARD et al. (U.S. Patent No. 6,047,331); rejects claims 9-11, 14-16, and 19 under 35 U.S.C. § 103(a) as unpatentable over HSING et al. in view of CAIN (U.S. Patent No. 6,857,026); rejects claim 3 under 35 U.S.C. § 103(a) as unpatentable over HSING et al. in view of MEDARD et al., and further in view of OHNO (U.S. Patent No. 6,252,853); and objects to claim 20 as containing allowable subject matter. Applicants respectfully traverse the above claim rejections under 35 U.S.C. §§ 102 and 103.

By way of the present amendment, Applicants amend claim 8 to improve form. No new matter has been added by way of the present amendment. Claims 1-4, 6, 8-21, and 24 remain pending.

Applicants note with appreciation the indication that claim 20 contains allowable subject matter.

Claims 1, 6, 8, 18, 21, and 24 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by HSING et al. Applicants respectfully traverse this rejection.

A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. See M.P.E.P. § 2131. Applicants submit that HSING et al. does not disclose or suggest the combination of features recited in Applicants' claims 1, 6, 8, 18, 21, and 24.

Applicants' independent claim 1 is directed to a network for forwarding packets from a source device to a destination device, where the network includes a plurality of network elements including a plurality of nodes and connecting links. The plurality of nodes includes at least one alternative-route-enabled node and at least one non-alternative-route-enabled node. The at least one non-alternative-route-enabled node comprises a storage space to store an initial route from the source device to the destination device; a mechanism to detect failure in a downstream network element in the initial route; and a forwarder to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node, where the failure message causes the alternative-route-enabled node to begin forwarding packets on an alternative route. HSING et al. does not disclose or suggest this combination of features.

For example, HSING et al. does not disclose or suggest at least one alternative-route-enabled node and at least one non-alternative-route-enabled node. The Examiner relies on element 110 of HSING et al. as allegedly corresponding to the at least one alternative-route-enabled node and element 118 of HSING et al. as allegedly corresponding to the at least one non-alternative-route-enabled node (Office Action, pg. 3). Applicants submit that these elements of HSING et al. do not correspond to the above features of claim 1.

Elements 110 and 118 of HSING et al. correspond to ATM switches (col. 7, lines 19-21). HSING et al. in no way discloses or suggests that ATM switch 110 is in any way different than ATM switch 118. Since ATM switches 110 and 118 are identical switches, it is unclear how the Examiner can reasonably allege that HSING et al.'s ATM switch 110 can correspond to an alternative-route-enabled node and ATM switch 118 can correspond to a non-alternative-route-enabled node. Clearly, ATM switches 110 and 118 would be considered alternative-route-

enabled nodes in the HSING et al. system since each of these switches is capable of routing traffic via an alternative route.

For example, as illustrated in Fig. 12 of HSING et al., an initial route is established between source device 102 and destination device 114 via ATM switches 110, 118, 116, and 122, as shown by the solid line. If, as illustrated in Fig. 12, ATM switch 116 experiences a fault, ATM switch 118 is capable of routing traffic via an alternative path that includes ATM switches 118, 120, 126, 124, and 122, as shown by the dotted line. Therefore, ATM switch 118 is clearly an alternative-route-enabled node. Similarly, if ATM switch 118 experienced a fault (instead of ATM switch 116), then ATM switch 110 could route traffic via an alternative path that includes, for example, ATM switches 110, 120, 126, 124, and 122. Therefore, ATM switch 110 is clearly an alternative-route-enabled node.

Nevertheless, HSING et al. does not disclose or suggest that ATM switch 118, which the Examiner alleges corresponds to a non-alternative-route-enabled node, includes a storage space to store an initial route from the source device to the destination device, as required by claim 1. The Examiner relies on routing table 208 in Fig. 2 of HSING et al. for allegedly corresponding to the above feature of claim 1 (Office Action, pg. 3). Applicants disagree.

HSING et al.'s routing table 208 stores information used for determining a physical path through network 100 (col. 8, lines 39-42). As illustrated in Fig. 3B of HSING et al., the routing table for ATM switch 118, which the Examiner alleges corresponds to the recited non-alternative-route-enabled node, includes information identifying a next hop node (i.e., the next ATM switch on a path toward the destination device). HSING et al. does not disclose or suggest that the routing table for ATM switch 118 stores an initial route from the source device to the

destination device, as required by claim 1, but merely the next hop on the route to the destination device.

HSING et al. discloses the routing table for ATM switch 110 in Fig. 3 according to a pre-planned source routing embodiment. It appears, to the best of Applicants' understanding, that the routing table for ATM switch 110 stores an initial route (through ATM switches S118, S116, and S122) and alternate routes (through ATM switches S112, S114, and S122 and ATM switches S118, S120, S126, S124, and S122). HSING et al. refers to switch 110 as a "source switch" since it is the switch to which the source device is connected (see, for example, Fig.1 and col. 12, lines 10-16). Source switch 110, however, is clearly an alternative-route-enabled node, as set forth in detail above. Therefore, the routing table of source switch 110 cannot reasonably be relied on to disclose a non-alternative-route-enabled node that includes a storage space to store an initial route from the source device to the destination device, as required by claim 1.

For at least the foregoing reasons, Applicants submit that claim 1 is not anticipated by HSING et al.

Claim 6 depends from claim 1. Therefore, Applicants submit that this claim is not anticipated by HSING et al. for at least the reasons given above with respect to claim 1.

Amended independent claim 8 recites features similar to those described above with respect to claim 1. Therefore, Applicants submit that claim 8 is not anticipated by HSING et al. for at least reasons similar to those given above with respect to claim 1.

Independent claim 18 is directed to a method for locally rerouting packets traveling on an established route when a node in a network of interconnected nodes fails. The method includes computing, at select intermediary nodes along the established route, an alternative route leading

from the select intermediary node to the destination device of the established route; storing, at each of the select intermediary nodes, the alternative route; determining locally that the established route has failed; and automatically forwarding packets on the alternative route. HSING et al. does not disclose or suggest this combination of features.

For example, HSING et al. does not disclose or suggest computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of the established route and storing, at each of the select intermediary nodes, the alternative route. The Examiner relies on elements 110-126 and col. 5, lines 15-25, of HSING et al. for allegedly disclosing the above feature of claim 18 (Office Action, pp. 4-5). Applicants disagree.

As set forth above, elements 110-126 of HSING et al. correspond to ATM switches (col. 7, lines 20-22). HSING et al. does not disclose or suggest that select ATM switches compute an alternative route leading from the select ATM switch to the destination device of the established route or storing the alternative route at each of the ATM switches, as required by claim 18. HSING et al. discloses three routing embodiments: a pre-planned hop-by-hop routing embodiment, a pre-planned source routing embodiment, and a dynamic source routing embodiment (col. 11, line 59, to col. 12, line 16).

In the pre-planned hop-by-hop routing embodiment, when an ATM switch fails, the ATM switch adjacent to the failed switch attempts to find an alternative route to the destination (col. 5, lines 19-24). In this embodiment, each ATM switch 110-126 stores a routing table that identifies a next hop along the primary path and along an alternative path (see, for example, Figs. 3A and 3B and col. 11, line 59, to col. 12, line 16). In the pre-planned hop-by-hop routing embodiment,

HSING et al. does not disclose or suggest that any of ATM switches 110-126 computes an alternative route leading from the ATM switch to the destination device of the established route or stores the alternate route, as required by claim 18. Instead, each of the ATM switches stores the identity of a next hop toward the destination device.

In the pre-planned source routing embodiment, neighboring upstream switches to a failed link or switch send re-route request messages back to the source switch (identified as switch 110 in Fig. 1), which then attempts to find an alternate route (col. 5, lines 29-35). In this embodiment, the source switch 110 includes a routing table that identifies the ATM switches in the primary path and the ATM switches in each of the alternative paths (see Fig. 3C and col. 11, line 59, to col. 12, line 16). In the pre-planned source routing embodiment, HSING et al. does not disclose or suggest that any other ATM switch 112-126 stores information identifying the ATM switches in the primary path and the ATM switches in each of the alternative paths. Therefore, HSING et al. discloses, in the pre-planned source routing embodiment, that only one ATM switch stores an alternative route. HSING et al. in no way discloses or suggests computing, <u>at select intermediary nodes along the established route</u>, an alternative route leading from the select intermediary node to the destination device of the established route and storing, <u>at each of the select intermediary nodes</u>, the alternative route, as required by claim 18.

In the dynamic source routing embodiment, the neighboring upstream switches to a failed link or switch send re-route messages back to the source switch (identified as switch 110 in Fig. 1), which dynamically computes an alternative route to the destination device when the re-route message is received. In this embodiment, only source switch 110 computes an alternative route. HSING et al. in no way discloses or suggests computing, <u>at select intermediary nodes along the</u>

established route, an alternative route leading from the select intermediary node to the destination device of the established route and storing, at each of the select intermediary nodes, the alternative route, as required by claim 18.

At col. 5, lines 15-25, HSING et al. discloses:

> In addition to failure detection methods, the present invention is directed to various connection restoration methods applicable to, e.g., pre-planned hop-by-hop routing embodiments, pre-planned source routing embodiments, and dynamic source routing embodiments.
>
> In accordance with one connection restoration method based on pre-planned hop-by-hop routing, the neighboring upstream switch from the failed link or node, e.g., the switch adjacent the failed link or node on the side close to the source device, attempts to find an alternative route to the destination device on a per virtual connection basis. Alternative route information programmed into the switch's routing table can be used in finding routes around a failed link or node. One embodiment of this particular restoration methodology is implemented using capabilities of the current ITU-T B-ISUP signaling protocol.

This section of HSING et al. merely discloses that a pre-planned hop-by-hop routing method exists where a neighboring upstream switch from a failed link or node attempts to find an alternative route to the destination. As set forth above, in this embodiment, each ATM switch 110-126 stores a routing table that identifies a next hop along the primary path and along an alternative path (see, for example, Figs. 3A and 3B and col. 11, line 59, to col. 12, line 16). In the pre-planned hop-by-hop routing embodiment, HSING et al. does not disclose or suggest that any of ATM switches 110-126 computes an alternative route leading from the ATM switch to the destination device of the established route or stores the alternate route, as required by claim 18. Instead, each of the ATM switches stores the identity of a next hop toward the destination device.

For at least the foregoing reasons, Applicants submit that claim 18 is not anticipated by

HSING et al.

Claim 21 depends from claim 18. Therefore, Applicants submit that this claim is not anticipated by HSING et al. for at least the reasons given above with respect to claim 18.

Claims 2, 4, 12, 13, and 17 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over HSING et al. in view of MEDARD et al. Applicants respectfully traverse this rejection.

Claims 2 and 4 depend from claim 1. The disclosure of MEDARD et al. does not remedy the deficiencies in the disclosure of HSING et al. set forth above with respect to claim 1. Therefore, Applicants submit that claims 2 and 4 are patentable over HSING et al. and MEDARD et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1.

Claims 12, 13, and 17 depend from claim 8. The disclosure of MEDARD et al. does not remedy the deficiencies in the disclosure of HSING et al. set forth above with respect to claim 8. Therefore, Applicants submit that claims 12, 13, and 17 are patentable over HSING et al. and MEDARD et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 8.

Claims 9-11, 14-16, and 19 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over HSING et al. in view of CAIN. Applicants respectfully traverse this rejection.

Applicants note that CAIN is not prior art with respect to Applicants' application. The present application was filed on July 15, 1999. The CAIN document was patented on February 15, 2005, which is after Applicants' filing date. Moreover, the CAIN document was filed on December 14, 1999, which is also after Applicants' filing date. Thus, the CAIN document is not

prior art under 35 U.S.C. § 103(a). Accordingly, Applicants request that the rejection of claims 9-11, 14-16, and 19 be reconsidered and withdrawn.

Claim 3 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over HSING et al. in view of MEDARD et al., and further in view of OHNO. Applicants respectfully traverse this rejection.

Claim 3 depends from claim 2. The disclosure of OHNO does not remedy the deficiencies in the disclosures of HSING et al. and MEDARD et al. set forth above with respect to claim 2. Therefore, Applicants submit that claim 3 is patentable over HSING et al., MEDARD et al., and OHNO, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 2.

In view of the foregoing amendments and remarks, Applicants respectfully request the Examiner's reconsideration of the application and the timely allowance of pending claims 1-4, 6, 8-21, and 24.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

HARRITY & SNYDER, L.L.P.

By: ______________________
John E. Harrity
Reg. No. 43,367

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11240 Waples Mill Road
Suite 300
Fairfax, Virginia 22030
Telephone: (571) 432-0800
Facsimile: (571) 432-0808